Amendments to the specification:

Replace the paragraph on page 12 line 7 with the following paragraph:

--The algorithm is described in figure 5, and may be understood in combination with figure 6, which shows the binary tree associated with the execution of the algorithm for the case where the data size of Vagc n=7. Execution of the algorithm starts at step 160, and initialization occurs at step 162 with Vagc being initialized to the value $2^{n-1}-1$, and the loop variable k set ~~to 1~~ to 0 and the number of iterations m optionally pre-computed from system constants, as will be described later. Figure 6 illustrates this with initial value 011 1111 198 and k=0 204. Figure 5 step 164 presents the value of Vrms for the new gain setting, corresponding to Vrms calculator 136 of figure 4. In step 166, the rms voltage from the output of the A/D converters is compared to a threshold voltage Vth. The origins of Vth will be described in figure 9, but relate to the optimum control range for the A/D converter. If the input level Vrms is greater than Vth, the gain needs to be lowered in step 168, and if the input level is less than Vth, the gain needs to be increased in step 170. The amount of gain control change in each iteration is 2^{n-k-1} as shown in steps 168 and 170 of figure 5 and successive correction values 200, 202, 208, and 210 of figure 6, ~~$2^{n-k-1}-1$,~~ corresponding to roughly half of each gain control step. In each iteration, the iteration variable k is incremented in step 172 prior to its application in steps 160 or 170, and the number of iterations is compared to the number of iterations of the loop in step 174. If the number of iterations k is less than the number required m, the program returns to step 164, and if the number of iterations is complete, the program completes in step 176. Viewing figure 6, where the case for n=7 is described, the initial value 011 1111 198 is set and k is initialized to 0 204. 190 shows the result of the decision point where the value 010 0000 is added 200, or it is subtracted 202, and the loop variable k is incremented to 1 206. On the following iteration, k=2 214, and upon comparison of Vrms to Vth, the value 001 0000 is added 208 or subtracted 210, as shown. The process continues for each iteration as shown, until the chosen number of iterations is reached, as measured by the value of iteration variable k.--